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REMARKS

The present Amendment amends claims 1, 3, 12, 14 and 17 and leaves claims 2, 4, 6-11, 15, 16 and 18-20 unchanged. Therefore, the present application has pending claims 1-4, 6-12 and 14-20.

The disclosure stands objected to due to informalities noted by the Examiner in the Office Action. Amendments were made throughout the specification to correct the informalities noted by the Examiner. Therefore, this objection is overcome and should be withdrawn.

Claims 1-4, 6, 12, 17 and 18 stand rejected under 35 USC §103(a) as being unpatentable over Oliveira (U.S. Patent No. 6,766,359) in view of Guthrie (U.S. Patent Application Publication No. 2005/0010592); and claims 7-11, 14-16, 19 and 20 stand rejected under 35 USC §103(a) as being unpatentable over Oliveira, Guthrie and in view of Becker-Szendy (U.S. Patent Application No. 2005/0114291). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1-4, 6-12 and 14-20 are not taught or suggested by Oliveira, Guthrie or Becker-Szendy whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to claims 1-4, 6-12 and 14-20 to more clearly describe features of the present invention as recited in the claims. Particularly, amendments were made to the claims to more clearly recite that the present invention is directed to a first storage system connected, via a network, to a computer and a second storage system, a system for storing a

file accessed by a computer, said system including the first storage system and the second storage system, and a computer program product for a first storage system and a second storage system.

The first storage system according to the present invention is connected via a network to a computer and a second storage system, and includes a first storage device configured to a first file system, a first controller for controlling the first file system and a second controller for controlling input/output operations to/from the second storage system.

According to the present invention the second storage system has a second storage device configured to a second file system and a third controller connected to the second controller for controlling the second file system. Further, according to the present invention the first controller mounts a root directory of the second file system at a mount point in the first file system such that the first and second file systems are provided to the computer as a single directory tree.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by Oliveira, Guthrie or Becker-Szendy whether said references are taken individually or in combination with each other as suggested by the Examiner.

Oliveira merely teaches a single storage system having a plurality of disc controllers (CHN ADPTRs and DISK ADPTR) and discs. As taught by Oliveira when accessing from a host computer, one of plural paths between

the host computer and the storage system is selected and the storage system is accessed via the selected path. Oliveira teaches that the disc includes shared volumes accessible from a plurality of host computers and the shared volumes are utilized as a buffer.

However, at no point is there any teaching or suggestion in Oliveira of the features of the present invention as now more clearly recited in the claims. According to the present invention a layered structure is provided such that the second storage system having a second storage device is provided external to the first storage system having the first storage device and that the host computer accesses data stored in the second storage system via the first storage system by use of the respective first and second file systems. Such features are clearly not taught or suggested by Oliveira.

Oliveira simply discloses that the single storage system includes a plurality of disc controllers and a plurality of controllers 107, 109 that can be accessed by a processor 116 of the host computer. There is no teaching or suggestion in Oliveira as in the present invention wherein the first and second storage systems are configured in a manner such that the host computer accesses a third controller of the second storage system via the first and second controllers of the first storage system and the network so as to access a second file system in the second storage device via the first file system in the first storage device so that the second file system appear as a part of the first file system, thereby forming a single directory tree.

Thus, Oliveira fails to teach or suggest a first storage system having a first storage device configured to a first file system, a first controller for controlling the first file system and a second controller for controlling

input/output operations to/from the second storage system connected to the first storage system via a network as recited in the claims.

Further, Oliveira fails to teach or suggest that the second storage system has a second storage device configured to a second file system and a third controller, connected to the second controller, for controlling the second file system as recited in the claims.

Still further, Oliveira fails to teach or suggest that the first controller mounts a root directory of the second file system at a mount point in the first file system such that the first and second file systems are provided to the computer as a single directory tree as recited in the claims.

The above described deficiencies of Oliveira are not supplied by any of the other references of record. Particularly, the above described deficiencies of Oliveira are not supplied by Guthrie or Becker-Szendy whether said references are taken individually or in combination with each other or any of the other references of record.

Guthrie simply discloses that when a snapshot of a file system is prepared, a node representing the snapshot thus prepared is constituted beneath a root node same as that of the file system. Attention is directed to Fig. 7 of Guthrie.

Becker-Szendy simply discloses a single computer system which includes an application and a local file system utilized by the application. Becker-Szendy teaches that during the migration or federation, files within a local file system can be accessed from the application (attention is directed to the Abstract and paragraphs [0033] and [0072] of Becker-Szendy. Becker-Szendy further teaches that a flag is set at the time of deleting an object from

the local file system. Attention is directed to paragraph [0072] of Becker-Szendy.

However, both Guthrie and Becker-Szendy fail to teach or suggest the features of the present invention now more clearly recited in the claims and particularly does not supply any of the deficiencies of Oliveira as noted above.

Even if Oliveira is combined with Guthrie in the manner suggested by the Examiner in the Office Action, the combination merely suggests that a snapshot relating to some data is prepared beneath a directory the same as that of the data. However, such configuration is entirely different from that of the present invention as recited in the claims in which the second file system is mounted on a single directory tree constituted by the first file system in order to provide the host computer with data to be stored in the second storage system via a network from the first storage system, thereby forming a single directory tree. Such features are clearly not taught or suggested by Guthrie.

Thus, both Guthrie and Becker-Szendy fail to teach or suggest a first storage system having a first storage device configured to a first file system, a first controller for controlling the first file system and a second controller for controlling input/output operations to/from the second storage system which is connected to the first storage system via a network as recited in the claims.

Further, both Guthrie and Becker-Szendy fail to teach or suggest that the second storage system has a second storage device configured to a second file system and a third controller, connected to the second controller, for controlling the second file system as recited in the claims.

Still further, both Guthrie and Becker-Szendy fail to teach or suggest that the first controller mounts a root directory of the second file system at a mount point in the first file system such that the first and second file systems are provided to the computer as a single directory tree as recited in the claims.

Therefore, since each of Oliveira, Guthrie and Becker-Szendy suffers from the same deficiencies relative to the features of the present invention as now more clearly recited in the claims, combining Oliveira with one or more Guthrie and Becker-Szendy does not teach or suggest the features of the present invention as now recited in the claims and as such does not render obvious the present invention as claimed. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1-4, 6, 12, 17 and 18 as being unpatentable over Oliveira in view of Guthrie and reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 7-11, 14-16, 19 and 20 as being unpatentable over Oliveira and Guthrie and Becker-Szendy are respectfully requested.


The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-20.

In view of the foregoing amendments and remarks, applicants submit that claims 1-4, 6-12 and 14-20 are in condition for allowance. Accordingly, early allowance of claims 1-4, 6-12 and 14-20 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (500.43772X00).

Respectfully submitted,

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